

Claims:

1. A nucleic acid molecule encoding a MUC-1 derivative which is capable of raising an immune response in vivo, said response being capable of recognising a MUC-1 expressing tumour, wherein the nucleic acid has a RSCU value for the non-repeat region of at least 0.6 and has a level of identity of less than 85% in comparison with the MUC-1 VNTR nucleotide sequence shown in Figure 9, with respect to the corresponding non-repeat region of wild type MUC-1.
2. A nucleic acid module as claimed in claim 1 wherein the RSCU is at least 0.65.
3. A nucleic acid molecule as claimed in claim 1 wherein the identity is less than 80%.
4. A nucleic acid molecule encoding a MUC-1 derivative as claimed in claim 1 having less than 15 perfect repeat units.
5. A nucleic acid molecule as claimed in claim 4 having no perfect repeats.
6. A nucleic acid molecule as claimed in any claims 1-6 of which is devoid of the signal sequence.
7. A nucleic acid molecule as claimed in any of claims 1 to 6 that encodes one or more of the sequence from the group: FLSFHISNL; NSSLEDPSTDYYQELQRDISE; and NLTISDVSV.
8. A nucleic acid molecule as claimed in claim 1 to 7 additionally comprising a heterologous sequence that encodes a T-Helper epitope.
9. A nucleic acid molecule as claimed in any of claims 1 to 8 that is a DNA molecule.
10. A plasmid comprising the DNA molecule of claim 1 to 9.

11. A pharmaceutical composition comprising a nucleic acid as claimed in claim 1 to 9 or a plasmid as claimed in claim 10 and a pharmaceutical acceptable excipient, diluent or carrier.
- 5 12. A pharmaceutical composition as claimed in claim 11 wherein the carrier is microparticle.
13. A pharmaceutical composition as claimed in claim 12 wherein the microparticle is gold.
- 10 14. A pharmaceutical composition as claimed in any of claim 11-13 additionally comprising an adjuvant.
- 15 15. A nucleic acid as claimed in any of claim 1 to 9, a plasmid as claimed in claim 10, or a pharmaceutical composition as claimed in claim 11 – 14 for use in medicine.
16. Use of a nucleic acid as claimed in any of claim 1 to 9 in the preparation of a medicament for the treatment or prevention MUC-1 expressing tumours.
- 20 17. A method of treating or preventing tumours, comprising administering a safe and effective amount of a nucleic acid as claimed in claim 1 to 9, or a plasmid of claim 10.

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